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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,132	12/20/2000	Akira Osamato	TI-29873	6611

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TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER

HERNANDEZ, NELSON D

ART UNIT	PAPER NUMBER
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2622

NOTIFICATION DATE	DELIVERY MODE
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06/04/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
uspto@dlemail.itg.ti.com

Office Action Summary	Application No. 09/745,132	Applicant(s) OSAMATO, AKIRA	
	Examiner Nelson D. Hernandez	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Appeal Brief filed on 29 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 2 is/are allowed.
- 6) ☒ Claim(s) 3 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

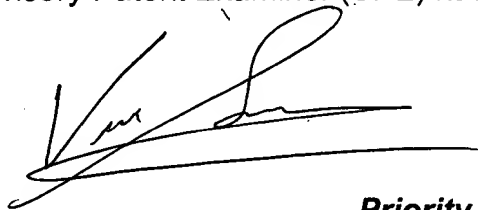
In view of the Appeal Brief filed on December 29, 2006, PROSECUTION IS HEREBY REOPENED. New Grounds of Rejections have been made as set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:



Priority

1. It is noted that the present application claims benefit of the following provisional applications:

60/172,780 filed 12/20/2000;

60/176,272 filed 1/14/2000;

60/177,432 filed 1/21/2000;

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60/214,951 filed 6/29/2000; and

60/215,000 filed 6/29/2000.

The Examiner notes that none of the inventors listed in the provisional applications are listed in the present application. See MPEP 1483 [R-3] II B (4).

“A nonprovisional application, other than for a design patent, or an international application designating the United States of America may claim an invention disclosed in one or more prior-filed provisional applications. In order for an application to claim the benefit of one or more prior-filed provisional applications, each prior-filed provisional application must name as an inventor at least one inventor named in the later-filed application and disclose the named inventor’s invention claimed in at least one claim of the later-filed application in the manner provided by the first paragraph of 35 U.S.C. 112. In addition, each prior-filed provisional application must be entitled to a filing date as set forth in §1.53(c), and the basic filing fee set forth in §1.16(d) must be paid within the time period set forth in §1.53(g).”

Response to Arguments

2. Applicant's arguments with respect to claims 3 and 4 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claim 3 is rejected under 35 U.S.C. 102(e) as being anticipated by Honma, US Patent 7,061,528 B1.**

Regarding claim 3, Honma discloses an interpolator (Fig. 6: 51) for complementary-color-filtered array image (See fig. 2), comprising:

(a) a subarray-to-array interpolator (See fig. 6: 3) for the color subarrays of a complementary-color-filtered array (See complementary color filter array in fig. 1; also, see col. 5, line 66 – col.6, line 6; col. 10, lines 1-22; col. 11, lines 7-45);

(b) a filter (Color Suppression Circuit 13 as shown in fig. 6) coupled to the output of the interpolator to adjust the interpolated colors at each pixel by adjusting with an imbalance factor for the pixel (color gain coefficient “k” as shown in fig. 7 and also taught in col. 11, line 7 – col. 14, line 4) (Col. 5, line 66 – col.6, line 6; col. 10, lines 1-22; col. 11, line 7 – col. 14, line 4).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over**

Honma, US Patent 7,061,528 B1 in view of Sakurai et al., US Patent 6,128,036.

Regarding claim 4, Honma does not explicitly disclose that the subarray-to-array interpolator and said filter are implemented as a program on a programmable processor.

However, the concept of programming a processor to implement subarray-to-array interpolation for complementary colors and to perform filtering is notoriously well known in the art as taught by Sakurai. Sakurai teaches a digital still camera (See fig. 1), comprising an image processor unit (Figs. 1: 114, 5: 114) performing subarray-to-array complementary color interpolation followed by RGB conversion and color balancing to the interpolated pixel values said image processor unit comprising a color interpolation (Col. 4, line 61 – col. 4, line 18; col. 5, line 50 – col. 6, line 10; col. 8, line 22 – col. 9, line 59; col. 10, line 28 – col. 12, line 44). Sakurai also teaches that the processes performed by said image processor in the camera can be implemented with software in a computer (See fig. 24: 74), wherein said computer receives the image signal captured by an image pickup device (Fig. 24: 90) and stored in a frame memory (Fig. 24: 91) and said computer performs the subarray-to-array interpolation to the complementary colors,

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filtering (color balancing and gamma correction to the luminance signal), and conversion from complementary colors to RGB signals (Col. 14, lines 5-42).

Therefore, taking the combined teaching of Honma in view of Sakurai as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the interpolator in Honma by implementing the subarray-to-array interpolator and the filter as a program on a programmable processor. The motivation to do so would have been to increase the freedom of using different processing that can be changed in the programmable processor without changing the hardware used so that the camera can be design according to a required image quality and also to process the image signals on a real time basis or at low speed in accordance with the processing speed of the computer as suggested by Sakurai (Col. 14, lines 29-42).

Allowable Subject Matter

7. **Claims 1 and 2 are allowed.**

8. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest, including all the elements of the present claim:

(i) subtracting a quantity $(Y_e + C_y - 2 * G - M_g) / 4$ from Y_e to generate the pixel's adjusted yellow value where Y_e is the pixel's yellow value from step (b), C_y is the pixel's cyan value from step (c), M_g is the pixel's magenta value from step (d), and G is the pixel's green value from step (e);

(ii) subtracting the quantity $(Y_e + C_y - 2 * G - M_g) / 4$ from C_y to generate the pixel's adjusted cyan value;

(iii) adding the quantity $(Y_e + C_y - 2 * G - M_g) / 4$ to M_g to generate the pixel's adjusted magenta value; and

(iv) adding the quantity $(Y_e + C_y - 2 * G - M_g) / 8$ to G to generate the pixel's adjusted green value.

Regarding claim 2, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest, including all the elements of the present claim:

(i) subtracting a quantity $(Y_e + C_y - 2 * G - M_g) / 4$ from Y_e to generate the pixel's adjusted yellow value;

(ii) subtracting the quantity $(Y_e + C_y - 2 * G - M_g) / 4$ from C_y to generate the pixel's adjusted cyan value;

(iii) adding the quantity $(Y_e + C_y - 2 * G - M_g) / 4$ to M_g to generate the pixel's adjusted magenta value; and

(iv) adding the quantity $(Y_e + C_y - 2 * G - M_g) / 8$ to G to generate the pixel's adjusted green value.

Conclusion

9. Because new grounds of Rejection have been made to reject unamended **claims 3 and 4**, this Office Action is made **Non-Final**.

Contact

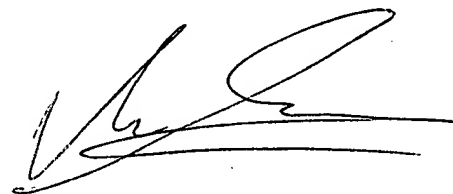
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nelson D. Hernandez
Examiner
Art Unit 2622

NDHH
April 18, 2007



VIVEK SRIVASTAVA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600